TE-029 Retroreflectivity

Office of Technology Applications

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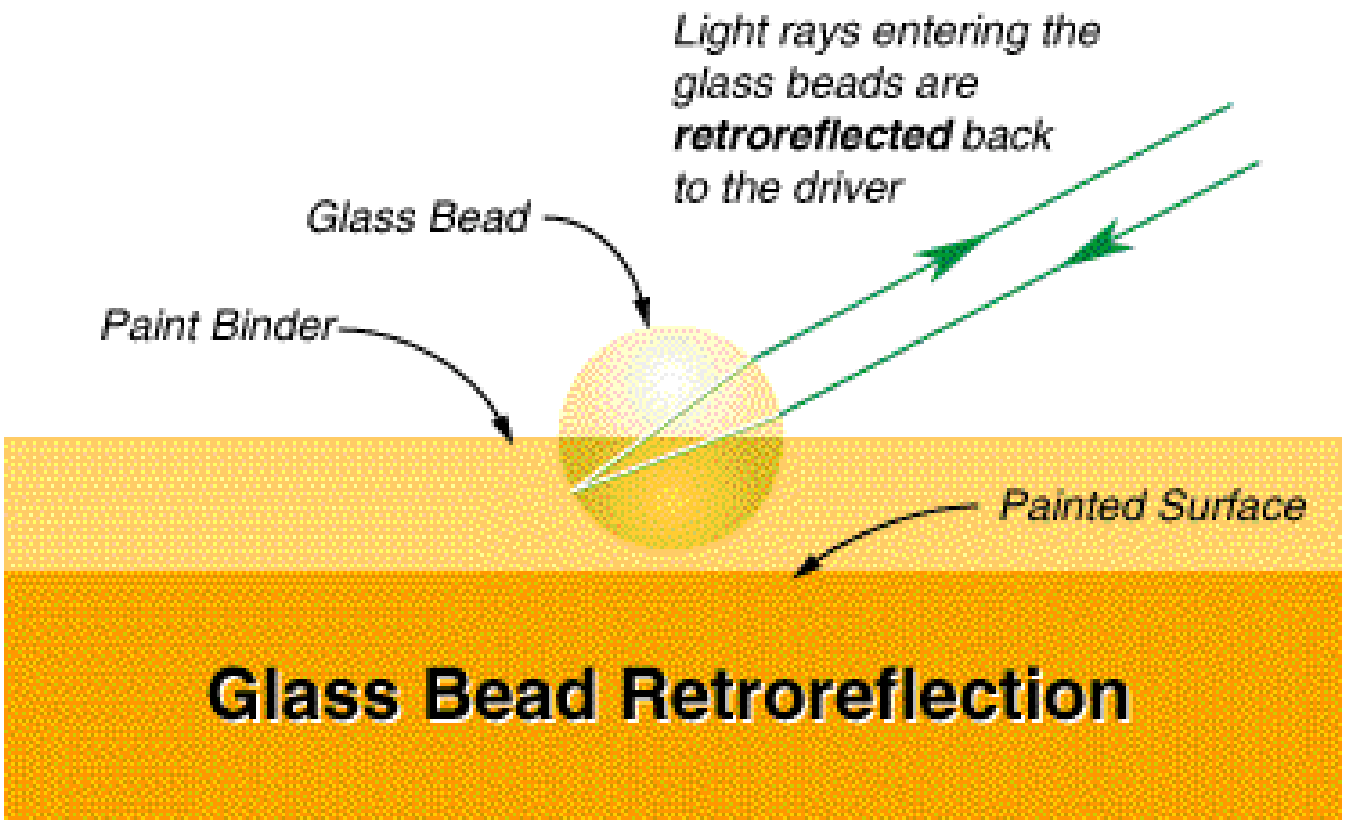
What Is Retroreflectivity?

Retroreflectivity is the nighttime visibility of traffic signs and pavement markings. In a highway environment, retroreflectivity promotes the following:

Efficient traffic flow

- Driving comfort
- Highway safety

How Does It Work?



What's The Problem?

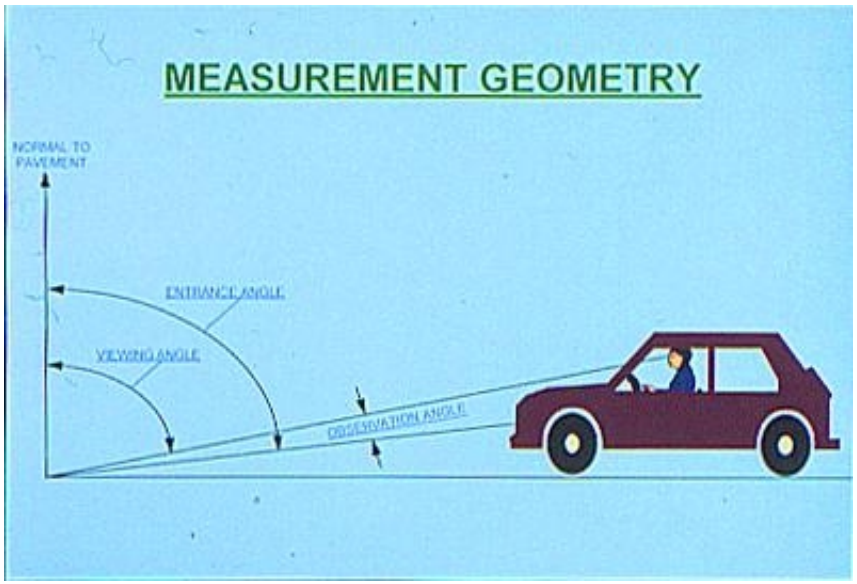
- Retroreflective paints and coatings degrade with the effects of traffic and weather.
- It's difficult to determine the best time to replace retroreflective markings and signs.
  - Too soon increases maintenance costs.
  - Too late compromises safety and driving comfort.

What Is TE-029?

An effort to improve the in-service performance of existing traffic signs and pavement markings by:

- Creating tools that can evaluate the condition of signs and markings; and
- Demonstrating state-of-the-art retroreflectivity measurement tools.

What Is The State-Of-The-Practice In Retroreflectometer Technology?



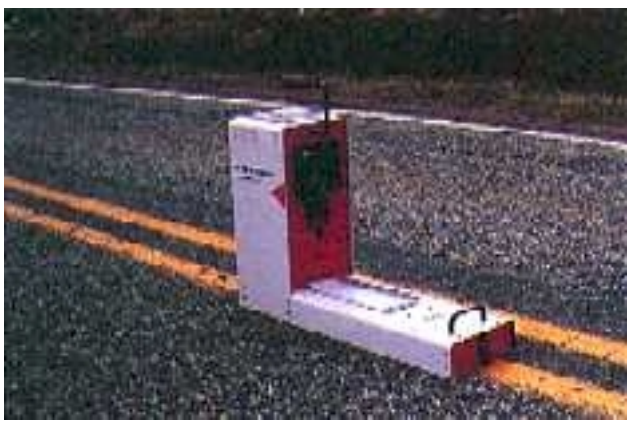
- Conforms to what an average passenger automobile driver sees when viewing 30 meters ahead of the vehicle at night
- Standard being considered in Europe by the European Committee on Normalization (CEN)

Pavement Marking Reflectometers

The pavement marking reflectometer is a tool for measuring pavement marking retroreflectivity to determine how bright the markings appear at night to motorists. There are two types: hand-held and mobile equipment.

Hand-Held Pavement Marking Retroreflectometer

These devices can be deployed widely in the field to spot check the condition of selected retroreflective pavement markings.



Mobile Pavement Marking Retroreflectometer Van

The van has the ability to take many continuous retroreflectivity readings while driving down the road at highway speeds.

Mobile Pavement Marking Retroreflectometer Van

This allows analysis of roadway markings on a system-wide basis. Agencies manage more efficiently their pavement marking program. Restripe only where it is needed and avoid waste of materials and labor on pavements that don’t need restriping.

Technology Transfer And Partnering

- The FHWA plans to promote and explain the safety benefits of pavement marking retroreflectivity to the highway community.
- Partnerships will be formed with the private sector to conduct the technology transfer and manage the technical assistance to the highway community.

Hand-Held Sign Reflectometer

The hand-held reflectometer is an instrument capable of measuring the retroreflection properties of road signs and retroreflective sheeting materials accurately and reliably.

Mobile Sign Retroreflectometer Van

The van uses a calibrated strobe lamp, mounted on top, to bounce light off highway signs. The returned light is processed by computer to account for observation, angle, and distance, and is then measured and compared to guidelines.

Status

- A prototype mobile sign retroreflectometer is built and is being showcased at national conferences.
- Three additional mobile sign retroreflectometer vans are being built.
- To help commercialize the mobile sign van, FHWA will conduct 35 demonstrations to generate demand for this innovative technology and encourage manufacturers to bring the technology to market.

For More Information

For more information about TE-029, contact:

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